SERVICE MANUAL

COOKING

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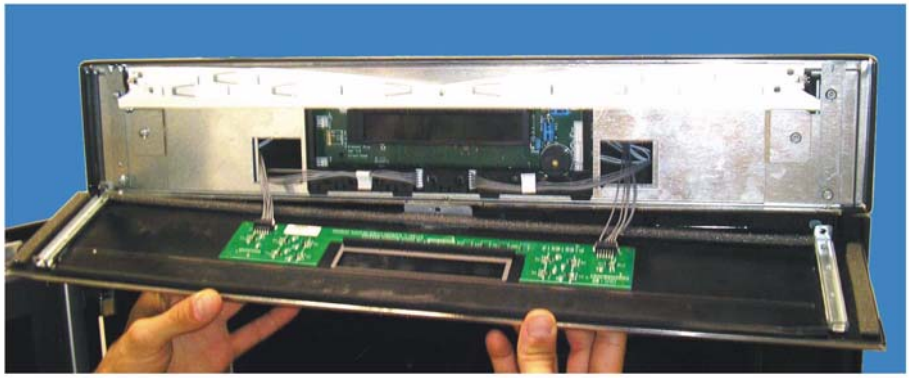

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Built-in ovens

SPECIFIC MANUAL
KRONOS LEVEL 2
(OVC1000)

Basic Italy 2 Version
Touch Control ENV06
New Demo

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1 INTRODUCTION

1.1 Purpose of this Manual

The purpose of this Manual is to integrate the information provided in the Kronos Theory Manual OVC1000 599371483, the Troubleshooting Manual 599371484 and the Accessibility Manual 599359640.

As well as the technical characteristics, this specific Manual also contains specific information relative to this version of the electronic control system

1.2 ESD - Electrostatic Discharge and its effect on the components

The interface for the control unit is not fitted with an internal device to protect against electrostatic discharge. When effecting repairs, therefore, the service engineer must check for stabilization of the potential on the oven casing (i.e. discharge any static electricity by touching the oven casing) in order to prevent the possibility of overload, which might damage the control unit.The same care is necessary when handling control units supplied as spare parts (i.e. not yet fitted to the oven), which must be removed from the protective bag in ESD only after stabilizing the potential (i.e. discharging any static electricity) and only then installed in the appliance.
Important!The theory behind the process of electrostatic charge and discharge is not discussed in this Manual.The tangible effects are considered to be more important.However, the effects are felt frequently when touching a metal handle and feeling the electrostatic discharge in the form of a minor shock.
But what happens when stabilization of the potential takes place with semi-conductor components (i.e. components on a circuit board, such as integrated circuits, microprocessors etc.)?
Stabilization of the potential takes place across the internal structure of the component.This does not necessarily lead to the immediate destruction of the component;Subsequent malfunctions across damaged internal connections may be more harmful, and these occur only as a result of overheating or current overloads.
It is true that almost all sensitive semi-conductor components (such as
MOS circuits) have been improved by the addition of protective measures, but the internal structures of these components are today smaller than, for example, ten years ago, which tends to increase their sensitivity to the previous levels).

IMPORTANT!

Which components are susceptible to damage by static electricity during repairs?
All circuit boards featuring control and command accesses (door switches, food probes etc.), bare tracks and microprocessors, as well as any other circuits with free access.

EXAMPLES:

- Programmers with access to the food probe and the door switch.
- Programmers whose control processors are accessible (due to their high costs, the protective systems are only partial).
- W.O.E.C. control units.
- S.O.E.C. control units.
- C.H.E.C. control units.
- KRONOS control units
- R.H.E.A. control units.

2 TECHNICAL CHARACTERISTICS

2.1 SOFTWARE

This level 2 version of "Kronos" - Basic Italy 2 Touch - features the software version k2c56165, which is indicated as shown below:

C56 0165

N.B.: The last three digits of the software code (the number shown on the display), in this case "165", indicate the level of modification, and may vary; however the control units remain interchangeable with the previous having same number.

2.2 TIMES

Time indication	24 hours
Maximum cooking time	23 hours 59 minutes
Minute-minder	23 hours 59 minutes

2.3 AUTOMATIC SWITCH-OFF

The automatic switch-off function operates as follows:

Temperature setting	**Automatic switch-off**
30-115°C	After 12 hours
120-195°C	After 8 hours 30 minutes
200-245°C	After 5 hours 30 minutes
250-280°C	After 3 hours

2.4 DIMENSIONS

2.4.1 MINIMUM INTERNAL DIMENSIONS OF KITCHEN CABINET

Column height	580 mm
Undercounter height	593 mm
Width	560 mm
Depth	550 mm

2.4.2 NET DIMENSIONS OF OVEN CAVITY

Height	335 mm
Width	395 mm
Depth	400 mm
Net volume	53 l

2.5 POWER RATINGS

2.5.1 Power ratings oven

Upper heating element	800 W
Lower heating element	1000 W
Upper + lower heating element	1800 W
Single grill heating element	1650 W
Double grill heating element	2450 W
Rear heating element (circular)	2000 W
Oven light	25 W
Cooling fan (tangential)	25 W
Oven fan (convection)	25 W
Oven maximum power rating	2500 W
Voltage (50Hz)	230 V

3 CONTROL PANEL

3.1 CONTROLS

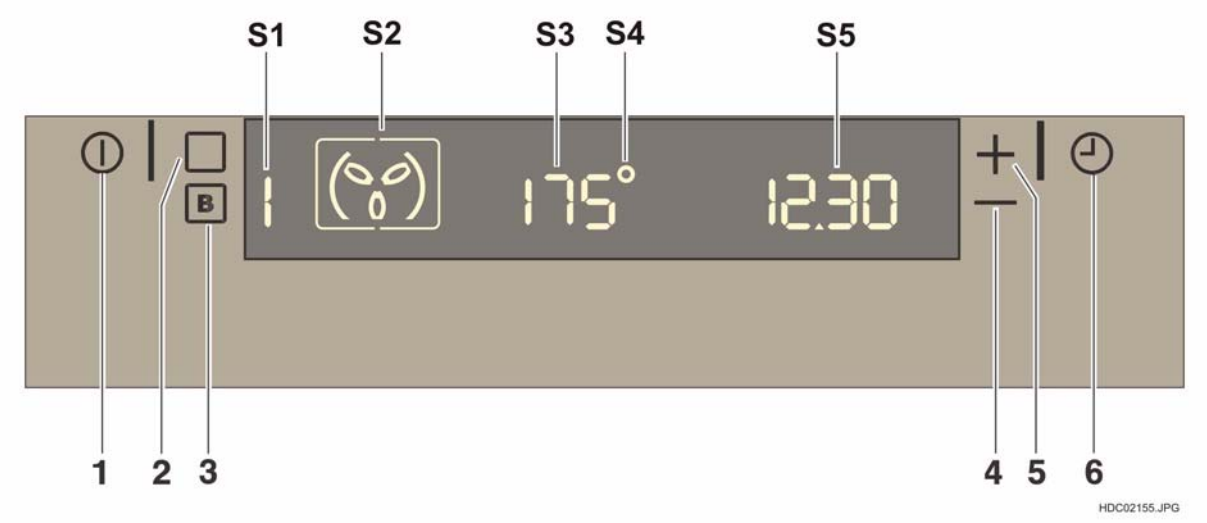


Fig. 1

1 - Button	⏻	“ON/OFF” to switch the oven ON and OFF
2 - Button	▢	“FUNCTION” to select the cooking functions of the oven
3 - Button	B	“RAPID HEATING” to select the rapid oven heating function
4 - Button	−	“BACK” to decrease the temperature and time
5 - Button	+	“FORWARD” to increase the temperature and time
6 - Button	🕘	“CLOCK” to set the "minute-minder", "end of cooking", "cooking time" functions and the time of day

S1 - Cooking function / Demo indication
S3 - Cooking function indication
S3 - Temperature indication
S4 - Degrees centigrade symbol
S5 - Time indication

3.2 DISPLAY

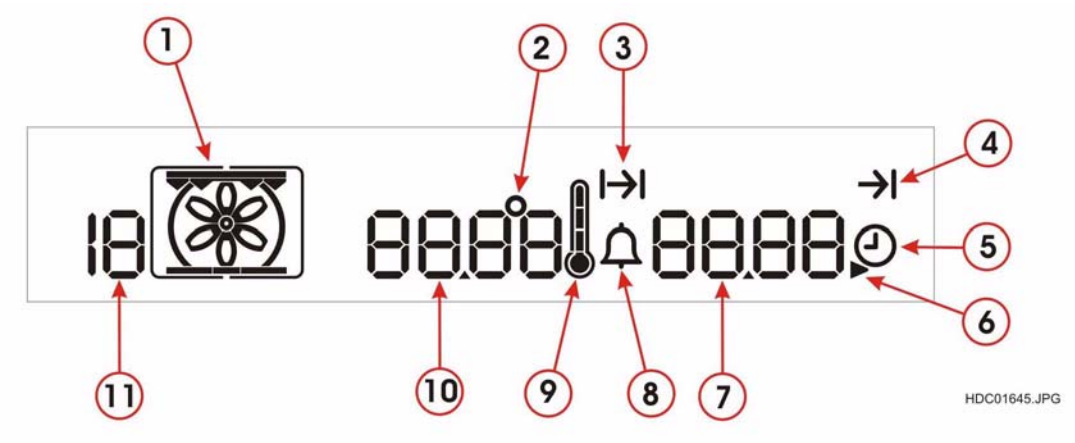
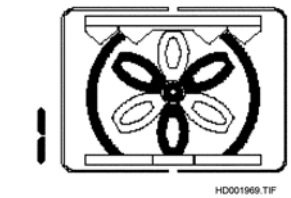


Fig. 2

1 - Oven functions
2 - Degrees centigrade symbol
3 - Cooking time symbol
4 - End of cooking symbol
5 - Clock symbol
6 - Clock arrow
7 - Time
8 - Minute-minder
9 - Thermometer
10 - Temperature
11 - Cooking function / Demo indication

4 COOKING FUNCTIONS

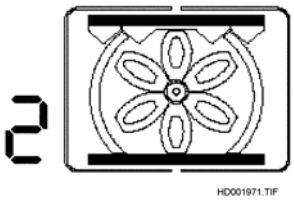
Fan cooking



Elements activated:
Oven light
Circular heating element
Convection fan

Pre-set temperature: 175°C
Temperature range: 30-250°C

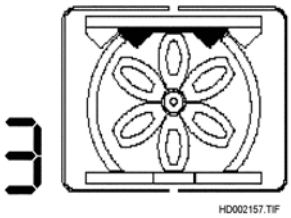
Traditional cooking



Elements activated:
Oven light
Upper heating element
Lower heating element

Pre-set temperature: 200°C
Temperature range: 30-250°C

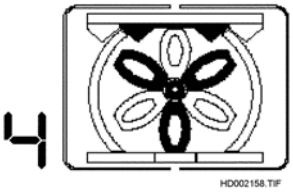
Grill



Elements activated:
Oven light
Grill heating element

Pre-set temperature: 250°C
Temperature range: 200-250°

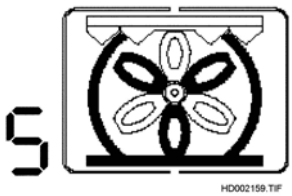
Grill + Fan



Elements activated:
Oven light
Grill heating element
Convection fan

Pre-set temperature: 180°C
Temperature range: 30-250°C

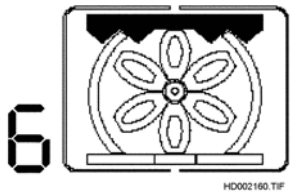
Pizza



Elements activated:
Oven light
Circular heating element
Lower heating element
Convection fan

Pre-set temperature: 175°C
Temperature range: 30-250°C

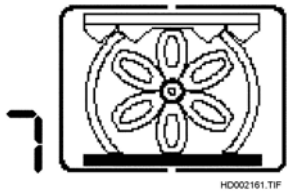
Large grill



Elements activated:
Oven light
Grill heating element
Upper heating element

Pre-set temperature: 250°C
Temperature range: 200-250°C

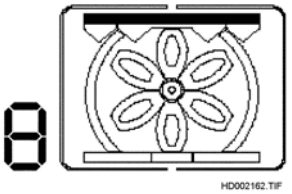
Bottom panel



Elements activated:
Oven light
Lower heating element

Pre-set temperature: 250°C
Temperature range: 30-250°C

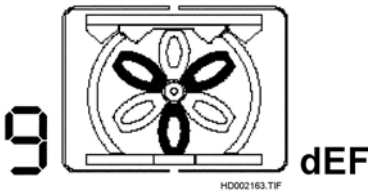
Top panel



Elements activated:
Oven light
Upper heating element

Pre-set temperature: 250°C
Temperature range: 30-250°C

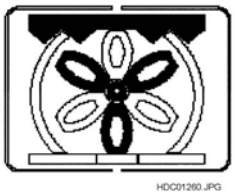
Defrosting



Elements activated:
Oven light
Convection fan

5 SPECIAL FUNCTIONS

5.1 RAPID HEATING



Elements activated:
Oven light
Grill heating element
Lower heating element
Convection fan

FHU

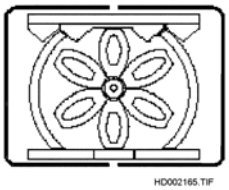
The figure illustrates the elements that are effectively in operation when the RAPID HEATING function has been selected, although the display indicates only the first function selected.

5.2 FUNCTION REQUIRING A TWO-KEY COMBINATION

FUNCTION	KEY COMBINATION			
	1° KEY	POSITION (Ref. Fig. 1)	2° KEY	POSITION (Ref. Fig. 1)
Child safety function	▢	(2)	−	(4)
"Beep" when key is pressed	▢	(2)	+	(5)
Demo Function 1st step (*)	🕘	(6)	--	--
Demo Function 2nd step (*)	🕘	(6)	−	(4)

(*) NOTE: The Demo function activates firstly pushing button 🕘 for 2 seconds and then pushing simultaneously button 🕘 and button −. The action of the first button and the action of the key-combination are confirmed by an acoustic signal.

5.3 OVEN LIGHT FUNCTION



Automatic switch-off: after 3 minutes

6 ERROR CODES

The KRONOS system performs some internal auto-diagnosis, and if it detects an operation inconsistency, it displays the error codes.

The error code is showed on the display as indicated in the figure.

The various error codes are listed in the table below:

ERROR CODE	ERROR CAUSE
F03	EEPROM Memory on control unit
F04	Temperature range of oven sensor exceeded (for more than 5 seconds)
F05	Temperature safety level exceeded > 350°C on normal ovens > 530°C on pyrolytic ovens (for more than 10 seconds)
F08	Communication interrupted between control unit and power board
F09	Software compatibility between control unit and power board
F10	Triac faulty (on power board)

Example of error code (F05):

Fig. 3

7 INTERFACE WITH TOUCH SENSORS

This oven is provided with a touch sensor control device.

To insert the controls in the oven, a sensors interface electronic PCB is used in place of the normal buttons which control the switches placed in the control unit.

The system consists of a sensor PCB placed under the glass which recognises the presence of a finger at a distance of about 4 mm from the sensors (glass thickness).

The sensor PCB includes 10 control units with touch sensors used on the basis of the control software of the different models (see Fig. 4 and 5).

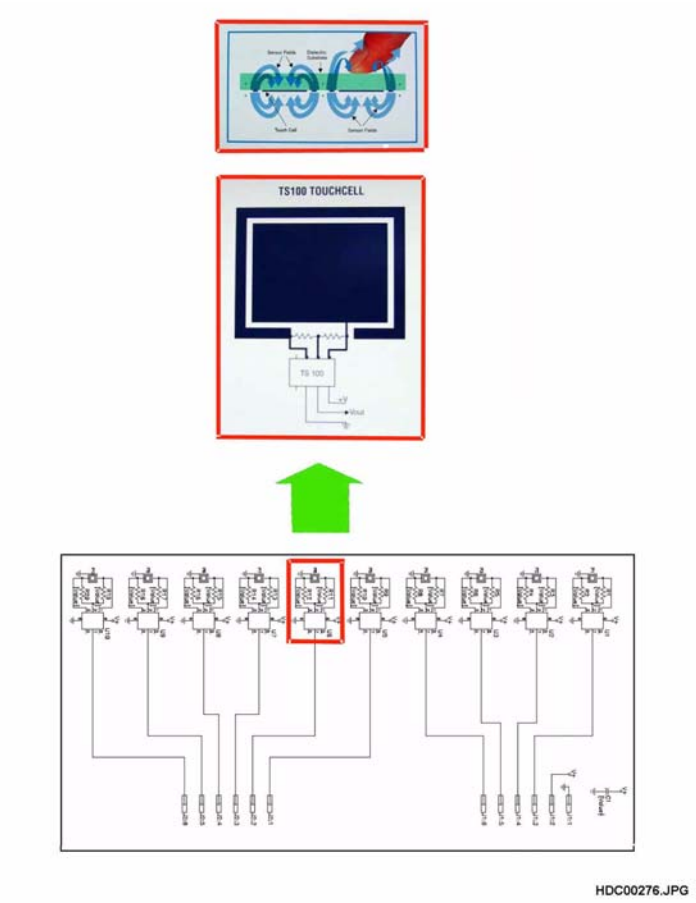


Fig. 4

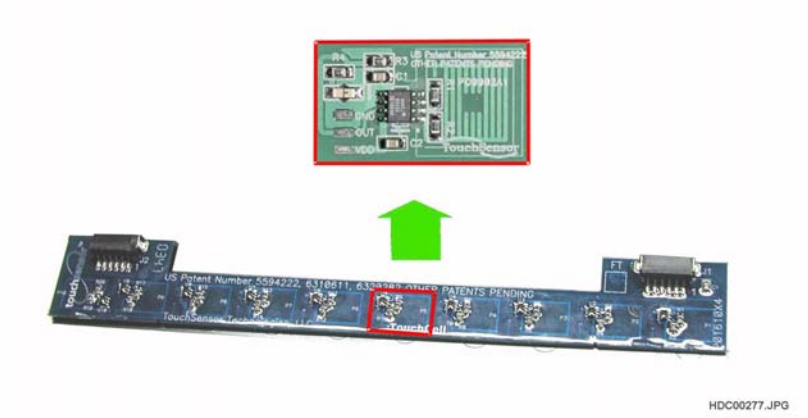


Fig. 5

When one of the sensors is activated, the PCB sends the control to the control unit through 2 cables with connectors (see Fig. 6 and 7).

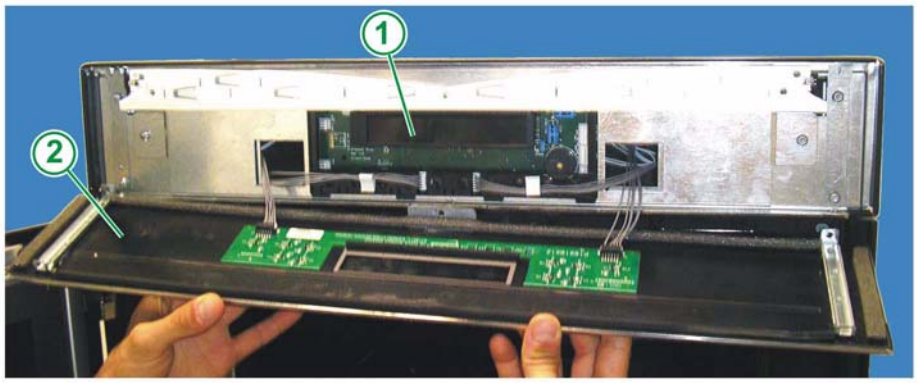


Fig. 6

1 - KRONOS CONTROL UNIT
2 - FRONT PIEECE ASSEMBLY

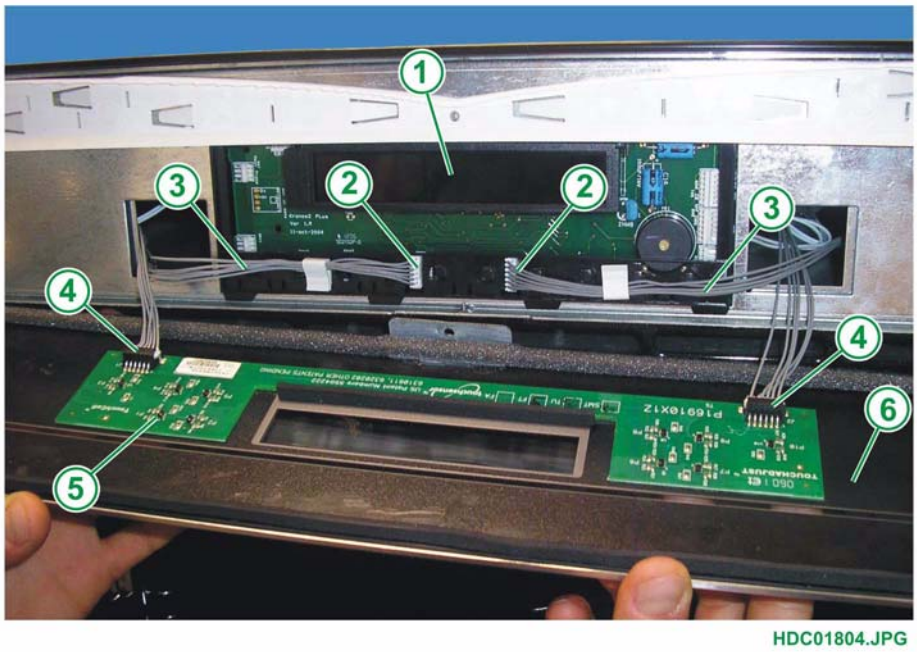


Fig. 7

1 - CONTROL UNIT
2 - CONNECTORS
3 - CONNECTION WIRING
4 - CONNECTORS
5 - SENSOR INTERFACE PCB
6 - FRONT PIECE GLASS

8 BUTTON TEST DIRECTLY ON THE CONTROL UNIT

It is possible to check the control actions by means of the microswitches on the Control unit. After demounting the front piece and removing the connectors of the sensor board, test the various functions of the buttons pushing the microswitches of the Control unit using a screwdriver or a button with part no. 355 02 93-02/5.

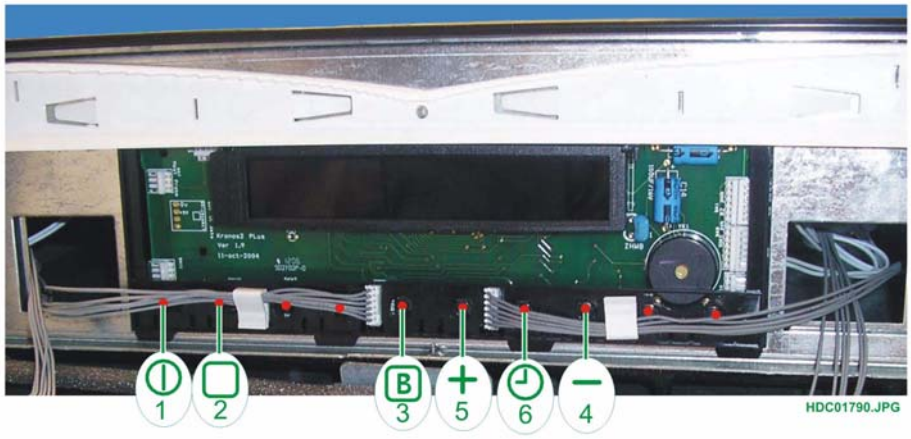


Fig. 8

N.B.: For the various functions of the microswitches see fig. 1 page. 6

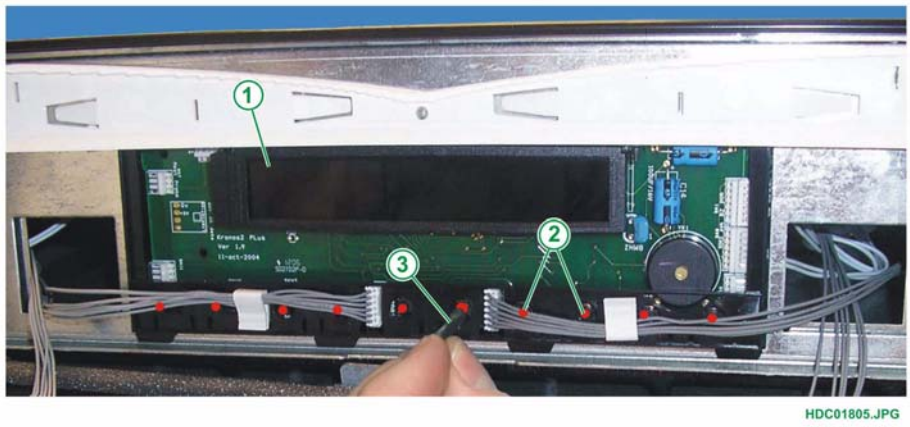


Fig. 9

1 - KRONOS CONTROL UNIT
2 - MICROSWITCHES ON THE CONTROL UNIT
3 - ACTIVATION OF THE MICRO THROUGH A BUTTON

BUTTON PART NO. 355 02 93-02 / 5

Fig. 10

9 OVEN BASIC WIRING DIAGRAM

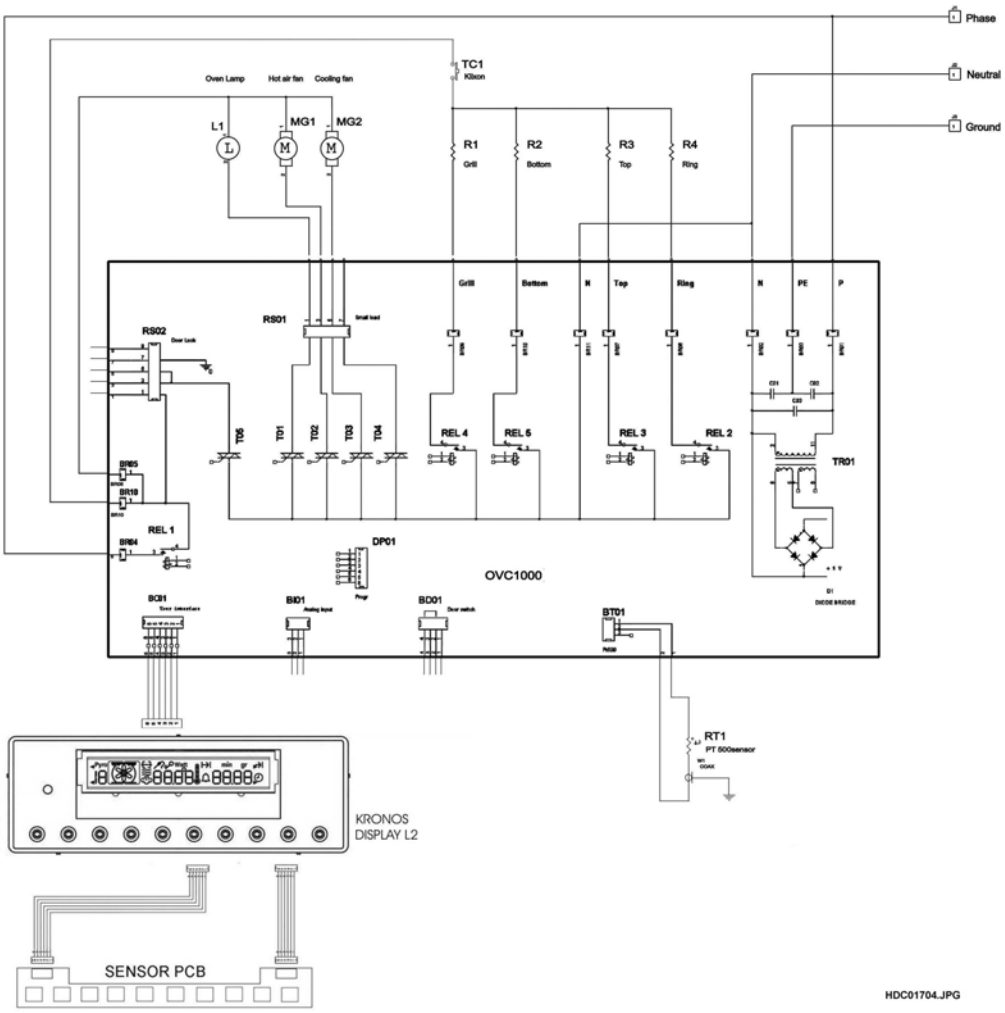


Fig. 11

KEY

DISPLAY L2	- CONTROL UNIT KRONOS LEVEL 2	REL1	- SAFETY MAIN RELAY
Ground	- MAINS (EARTH)	REL2	- CONVECTION HEATING ELEMENT CONTROL RELAY
L1	- OVEN LIGHT	REL3	- UPPER HEATING ELEMENT CONTROL RELAY
MG1	- CONVECTION FAN	REL4	- GRILL HEATING ELEMENT CONTROL RELAY
MG2	- COOLING TANGENTIAL FAN	REL5	- LOWER HEATING ELEMENT CONTROL RELAY
MG3	- TURNSPIT MOTOR	SENSOR PCB	- SENSOR INTERFACE PCB
Neutral	- MAINS (NEUTRAL)	TC1	- SAFETY THERMOSTAT
OVC1000	- POWER BOARD OVC1000	TO1	- OVEN LIGHT CONTROL TRIAC
Phase	- MAINS (PHASE)	TO2	- CONVECTION FAN CONTROL TRIAC
R1	- GRILL HEATING ELEMENT	TO3	- COOLING TANGENTIAL FAN CONTROL TRIAC
R2	- LOWER HEATING ELEMENT (BOTTOM)	TO4	- TURNSPIT MOTOR CONTROL TRIAC
R3	- UPPER HEATING ELEMENT (TOP)	TO5	- DOOR LOCK CONTROL TRIAC
R4	- CONVECTION HEATING ELEMENT (CIRCULAR)	TR01	- LOW VOLTAGE TRANSFORMER